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(71) Applicant
Francesco Canziani,
Via Contardo Ferrini 21, 21010 San Macario, Varese,
Italy

(72) Inventor
Francesco Canziani

(74) Agent and/or Address for Service
D Young & Co.,
10 Staple Inn, London WC1V 7RD

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GB A 2111933 GB 1326363 GB 0595599
GB 1529730 GB 0622144

(58) Field of search
B8A

(54) Conveying devices

(57) A self-contained conveying device which is attachable to a main conveyor (8) for moving articles transversely of the main conveyor direction comprises an endless belt (1) entrained around rollers (2), (3) journaled in side plates (5), one of the rollers being driven by a permanent magnet d.c. motor (4). The belt mechanism is housed in a container with means for attachment to the main conveyor, and guides on each side of the belt top run.

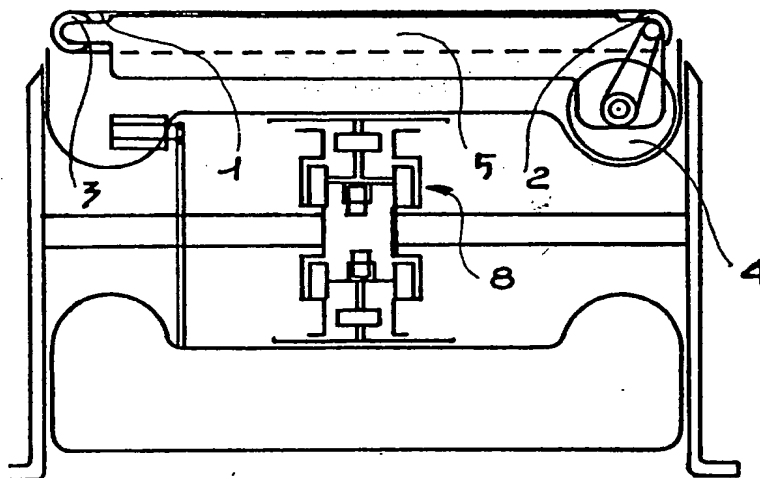


FIG 1

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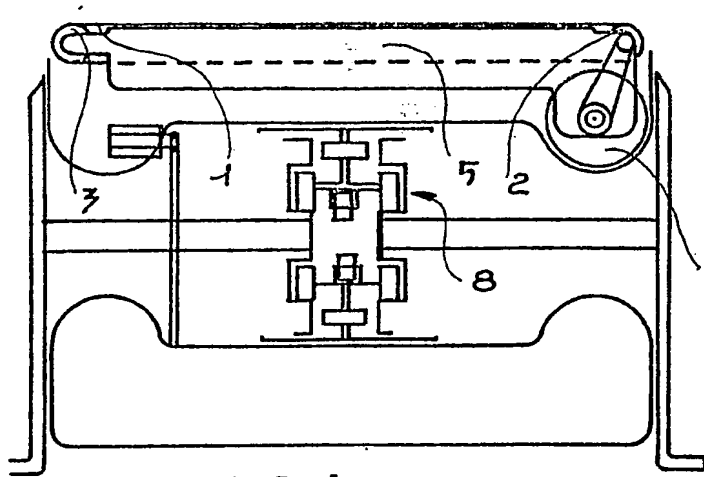


FIG 1

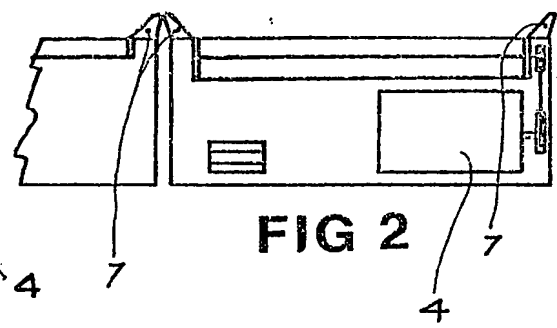


FIG 2

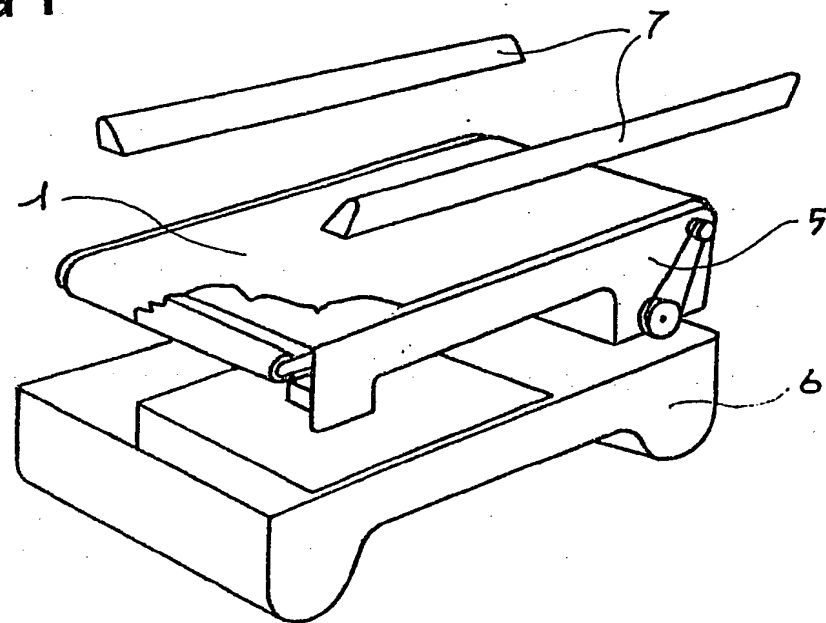


FIG 3

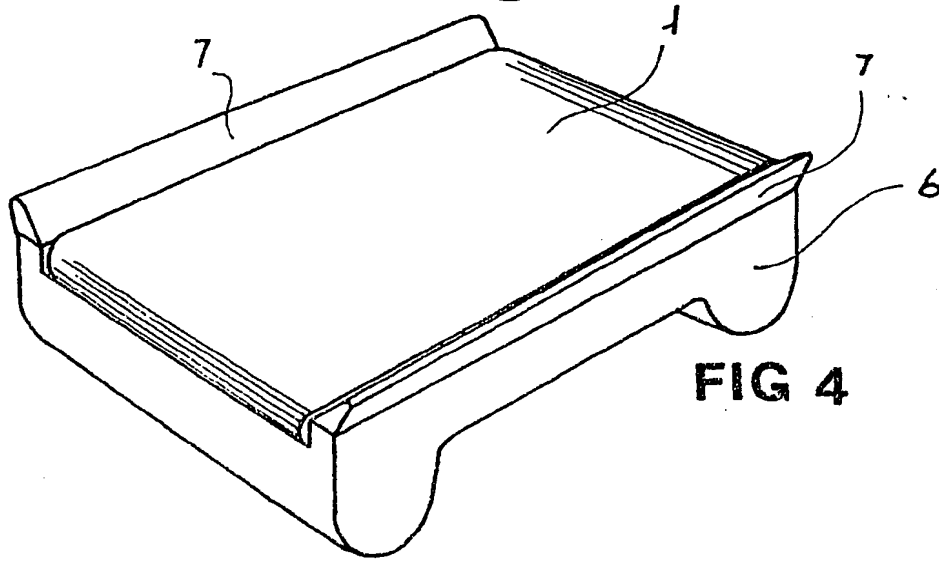


FIG 4

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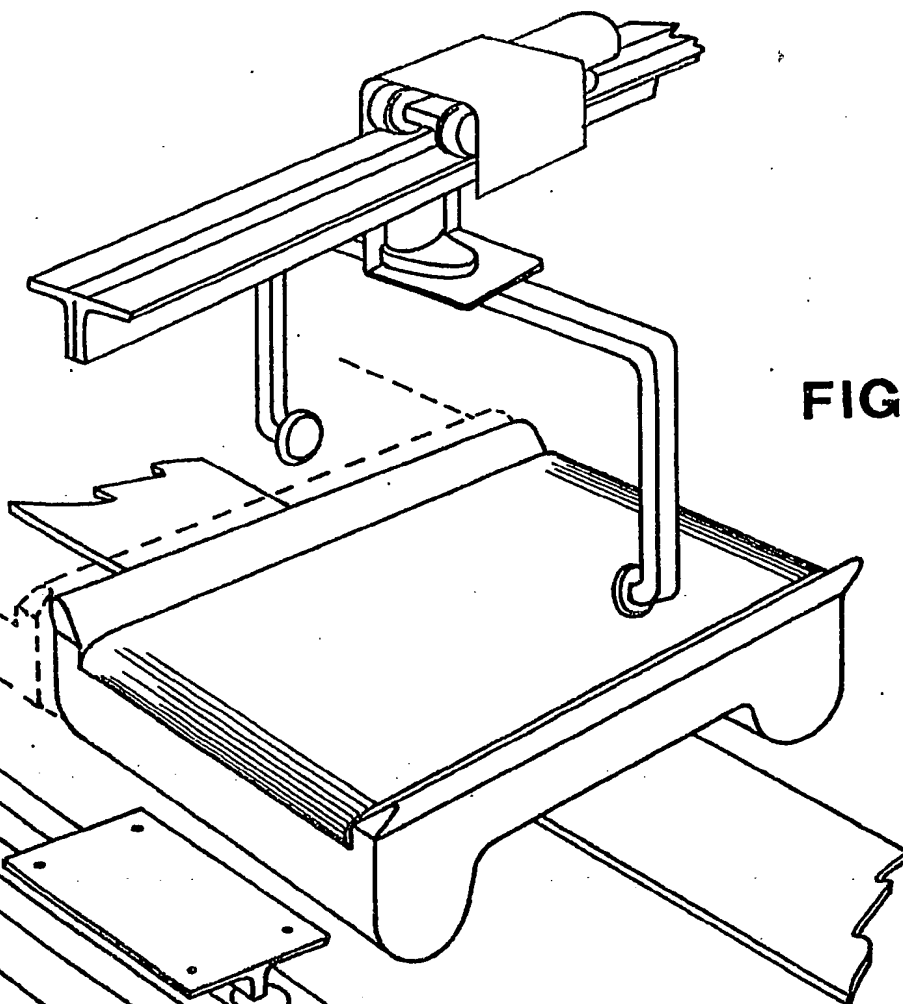


FIG 5

FIG 6

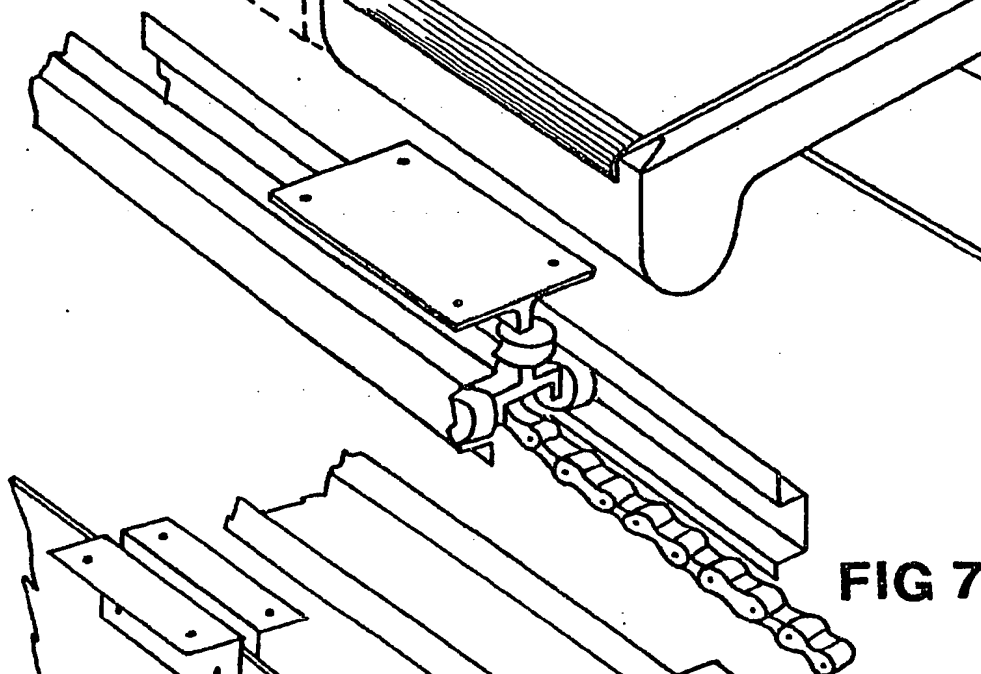


FIG 7

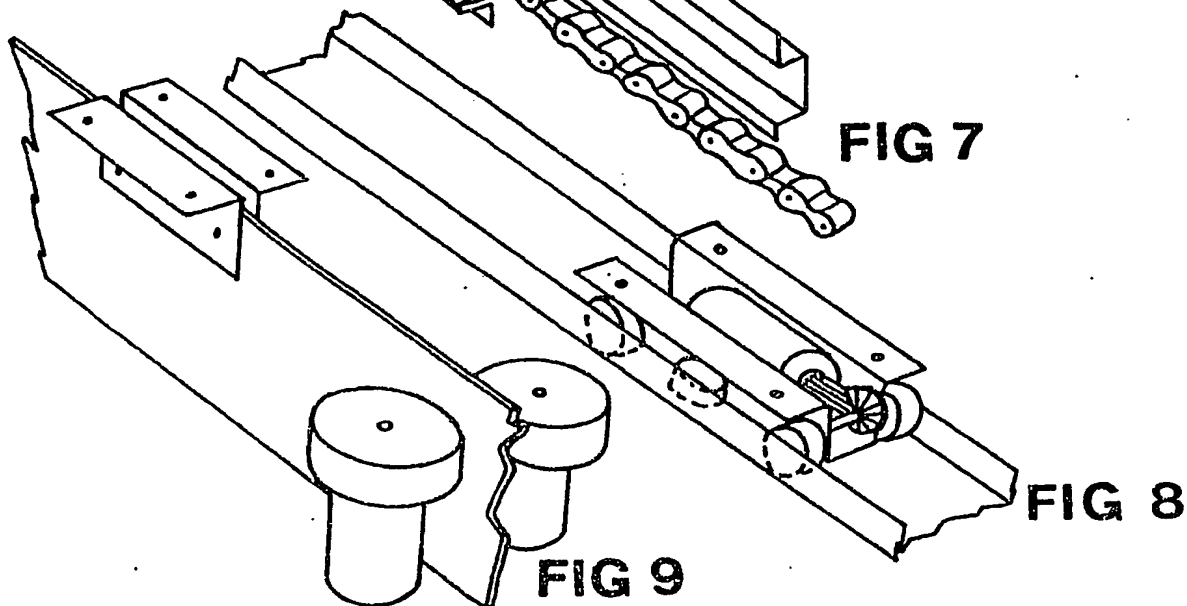


FIG 8

FIG 9

SPECIFICATION

Conveying devices

- 5 The present invention provides for a conveying device consisting essentially of a self-propelling belt that can be applied and used on selecting and sorting apparatus of any kind.
- 10 The device according to the invention is a completely independent, autonomous unit, preferably adaptable to any type of conveying plant, and capable of unloading the conveyed objects at any predetermined point along the path.
- 15 There are known sorting apparatus consisting of conveying elements, moved along a fixed path, provided with devices suitable for discharging, at predetermined collecting stations, the products that are loaded on the conveyor at suitable loading stations.
- 20 The unloading of objects is effected sometimes by means of the tilting of the conveyor, sometimes by action of a pushing element which runs along the conveyor itself, or by like means. The discharge can be either electrically or mechanically operated, in the latter case by means of cams or the like. In any case, the conveyor is provided with devices
- 25 allowing the mounting thereof on a sorting machine and the linkage thereof to elements controlling the unloading of objects.
- 30 As a consequence, each conveyor should be designed in accordance with the specific plant on which it shall be installed.
- 35 To obviate the inconveniences arising from the above, the present invention provides for a conveying device consisting of a belt having its own propelling means, which makes it possible the installation thereof on various
- 40 types of sorting apparatus.
- In this way, not only is it possible to use one conveying device for different apparatus, but also to modify the already existing apparatus, keeping all the advantages deriving from the use of rotating belts to unload objects.
- 45 The present invention will now be described in detail, with reference to the accompanying drawing in which:
- 50 *Figure 1* is a sectional view of a sorting machine wherein devices according to the invention are employed,
- Figure 2* is the section of a conveying device according to the invention,
- 55 *Figure 3* is the exploded view of the conveying device according to the invention,
- Figure 4* is the perspective view of the conveying device according to the invention, and
- 60 *Figures 5 to 9* show different forms of the conveying and/or sorting apparatus wherein devices according to the invention can be used.
- A device according to the invention consists
- 65 of a conveying belt 1 (Fig. 2) mounted on a

couple of rollers 2 and 3, the first roller being connected to a motor 4. Motor 4 is of the permanent magnet d.c. type, particularly suitable for applications of this kind thanks to its acceleration characteristics, allowing to unload and sort a greater amount of objects.

The shafts of rollers 3 and 4 are mounted on a couple of side guides 5, the whole being held in a container 6. Container 6 has on top a couple of side elements 7, in the shape of lugs or the like, which extend outwards and diverge upwards.

Fig. 4 is a perspective view of the complete device, after the parts thereof have been assembled.

On the lower part of container 6 there are provided elements for mounting the rotating belt on the conveyor (indicated by No. 8 in Fig. 1) of a sorting machine. This assembly is therefore a self-contained unit, that can be installed in any sorting apparatus and operated independently from it.

Devices according to the invention may be mounted side by side on a conveyor, so that the tops of elements 7 of two consecutive belts touch one another, so as not to leave any gap between one device and the next (Fig. 2).

The device may be operated and fed in a known manner, e.g. by means of contacts or the like, set along the main path.

A substantive feature of the invention is the provision for a conveying device capable of unloading objects in a completely independent manner from a conveyor of a sorting apparatus, so that it is possible to actuate said device wherever desired along the path.

Moreover, the shape of the device allows for easy installation on different kinds of sorting apparatus, e.g. a sorting machine wherein the supports of the conveying devices are moved by overhanging guides and the devices are hanging from the supports themselves, as illustrated in Fig. 5.

The belts according to the invention can even be applied to supports moved along the pre-established path by means of chains (Fig. 7) or a flexible belt (Fig. 9) or can be mounted on supports provided with their own motor and running along suitable guides, as illustrated in Fig. 8. Obviously the sizes as well as the employed materials can vary according to the different requirements of use.

120 CLAIMS

1. A conveying device particularly for sorting apparatus, characterized by the fact of providing self-propelling means for the unloading of the conveyed objects.
- 125 2. A conveying device according to claim 1, characterized by the fact of consisting of a self-propelling rotating belt, mounted on a support-container equipped with means suitable for applying it to sorting apparatus, there being provided means for actuating said belt
- 130

at any point along the path.

3. A conveying device according to claim 1 or 2 characterized by the fact that said belt is actuated by means of a permanent magnet direct current motor.

4. A conveying device according to any of claims 1-3, characterized by the fact of providing for an element supporting both the belt and the actuating means, said element being moved along the path of a sorting apparatus.

5. A conveying device according to any of claims 1-4, characterized by the fact that the means for operating the unloading shift along with the conveying device itself.

6. A conveying device according to any of claims 1-5, characterized by the fact of providing for a moving support having extensions suitable to engage, during shifting, corresponding parts of the adjacent conveying devices in order to form a continuous assembly.

7. A conveying device for moving objects transversely to the direction of movement of a main conveyor and comprising an endless belt entrained around two spaced-apart rollers, means for driving one of the rollers, a casing enclosing the rollers, the driving means, and a lower run of the belt and having means for its attachment to the main conveyor, and guide elements extending parallel to and adjacent the longitudinal edges of the upper run of the belt.

8. A conveying device wherein the drive means comprises a permanent magnet d.c. motor.

9. A conveying device constructed and arranged substantially as hereinbefore described and shown in Figs. 1-4 of the accompanying drawings.

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